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Chapter 10
Preparedness

Preparedness

Preparedness is the result of activities that are planned and implemented prior to wildland fire ignitions. Preparedness is a continuous process that includes developing and maintaining unit, state/regional, and national level firefighting infrastructure, predicting fire activity, hiring, training, equipping, and deploying firefighters, evaluating performance, correcting deficiencies, and improving overall operations. The preparedness process includes routine pre-season actions as well as incremental in-season actions conducted in response to increasing fire danger.

Preparedness actions are based on operational plans such as fire danger rating operating plans, which use information from decision support tools such as the National Fire Danger Rating System (NFDRS), the Canadian Forest Fire Danger Rating System (CFFDRS, used in interior Alaska), the Palmer Drought Index, live fuel moisture data, Monthly or Seasonal Wildland Fire Outlooks, Seasonal Climate Forecasts, and Wildland Fire Risk Analyses.

Fire Danger Rating Operating Plan

A Fire Danger Rating Operating Plan is a fire danger applications guide for agency users at the local level. A Fire Danger Rating Operating Plan documents the establishment and management of the local unit fire weather station network and describes how fire danger ratings are applied to local unit fire management decisions. Fire danger rating operating plans may be packaged as either stand-alone documents or as part of a larger planning effort; such as a fire management plan. Fire danger rating operating plans include, but are not limited to, the following components:

Roles and Responsibilities

Defined for those responsible for maintenance and daily implementation of the plan, program management related to the plan, and associated training. Training for development of fire danger rating areas is available through NWCG-sponsored NFDRS courses.

Operational Procedures

This section establishes the procedures used to gather and process data in order to integrate fire danger rating information into decision processes. The network of fire weather stations whose observations are used to determine fire danger ratings is identified. Station maintenance schedules are defined as appropriate. NFDRS offers several choices of fuel model and output to the user. Distinct selections of fuel model and index/component are appropriate for different management decisions (such as internal readiness or industrial and public restrictions). The choice of NFDRS fuel model and index or component used to determine fire danger ratings to support particular decisions is explained in this section.

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NFDRS requires periodic management in order to produce appropriate results that are applied in a timely manner. Some daily observation variables (such as state of the weather, fuels, red flags) are entered manually. This procedure (often called "taking the weather") also initiates the calculation of daily and forecasted outputs in the Weather Information Management System (WIMS) and ensures data storage in the National Interagency Fire Management Integrated Database (NIFMID). These efforts are coordinated with the local National Weather Service fire weather meteorologists and Geographic Area Coordination Center (GACC) predictive services meteorologists to provide timely forecasted NFDRS outputs. Observed (afternoon) and forecasted (tomorrow) NFDRS outputs are communicated daily. Live fuel moisture model inputs (such as herbaceous vegetation stage, season code, greenness factor) are adjusted seasonally in WIMS (~~http://famweb.nwcg.gov/~~)http://fam.nwcg.gov/fam-web/) at appropriate times. Decision points (such as percentiles discussed below) are determined in FireFamily Plus and reviewed and adjusted annually or more often as appropriate in WIMS and/or other fire danger platforms.

Fire Danger Rating Inventory

Identifies basic components of the operating plan such as dispatch response areas, protection units, administrative units, fire history, land management planning direction, standards, and guidelines, etc~~; aggregates~~. Aggregates NFDRS fuel models, slope classes (topography), and weather/climatology into fire danger rating areas; validates the existing weather station network and identifies any additional stations to support fire danger rating needs.

Climatic Breakpoints and Fire Business Thresholds

Climatological breakpoints and fire business thresholds are established to provide NFDRS-based decision points for all appropriate management responses in a fire danger rating area. Climatological breakpoints are points on the cumulative distribution of one fire weather/danger index computed from climatology without regard for associated fire occurrence/business. For example, the value of the 90th percentile ERC is the climatological breakpoint at which only 10 percent of the ERC values are greater in value. The percentiles for climatological breakpoints predetermined by agency directive are shown below.

BLM - 80th and 95th percentiles
FWS - 90th and 97th percentiles
NPS - 90th and 97th percentiles
FS - 90th and 97th percentiles

It is equally important to identify the period or range of data analysis used to determine the agency percentiles. The percentile values for 12 months of data will be different from the percentile values for the fire season. Year round data should be used for percentiles for severity type decisions, and percentiles based on fire season data for staffing levels and adjective fire danger.

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Fire business thresholds are values of one or more fire weather/fire danger indexes that have been statistically related to occurrence of fires (fire business). Generally the threshold is a value or range of values where historical fire activity has significantly increased or decreased. Assuming historical climate and occurrence patterns can be applied today, fire business thresholds are expected to more closely predict significant fire occurrence than climatological breakpoints.

Climatological breakpoints or fire business thresholds are used to compute staffing levels and adjective fire danger ratings.

Staffing Level
The Staffing Level is used to make daily internal fire operations decisions. A unit can operate with anywhere from 3 to 9 levels of staffing. Most units typically use 5 (1,2,3,4,5) or 6 (1,2,3L,3H,4,5). Staffing Level is a direct output of the danger rating processor and is based on one of the following:
NFDRS (Burning Index, Energy Release Component, Spread Component, or Ignition Component)
Keetch-Byram Drought Index

Additional Considerations:
Palmer Drought Index or other drought index
Live Fuel Moisture (calculated or sampled)
Canadian Forest Fire Danger Rating System
Soil Moisture

Adjective Fire Danger Rating
Adjective Fire Danger Rating (low, moderate, high, very high, extreme) is based on the NFDRS index or component used to compute staffing level and the ignition component. It is a general description of fire danger for the purpose of informing the public. Adjective ratings are computed automatically in the Weather Information Management System (WIMS) based on NFDRS parameters provided by local fire managers.

Climatic breakpoints and fire business thresholds are developed with NFDRS software, such as FIREFAMILY PLUS, and are applied to appropriate NFDRS processors, such as WIMS, to determine daily staffing levels and adjective ratings. Training for the FIREFAMILY PLUS program is available at local, regional, and national NFDRS courses.

Fire Danger Pocket Card for Firefighter Safety
The Fire Danger Pocket Card is used to communicate information on fire danger to firefighters. The prime objective of fire danger rating is to provide a measure of the seriousness of local burning conditions. The Pocket Card provides a visual reference of those conditions and how they compare to previous fire

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seasons. Pocket Cards are developed and implemented according to NWCG guidelines posted at http://famweb.nwcg.gov/pocketcards/. Fire Danger Pocket Cards are recommended at each local unit where weather data exists.

BLM/FS - Fire Danger Pocket Cards are developed for and implemented at each local unit.

~~FS - Forest Supervisors will develop and distribute Fire Danger Pocket Cards to each fireline supervisor.~~

Preparedness Plan

Preparedness plans provide management direction given identified levels of burning conditions, fire activity, and resource commitment, and are required at national, state/regional, and local levels. Preparedness Levels (1-5) are determined by incremental measures of burning conditions, fire activity, and resource commitment. Fire danger rating is a critical measure of burning conditions. Refer to the National Interagency Mobilization Guide for more information on preparedness plans.

Preparedness Level/Step-up Plans

Preparedness Level/Step-up Plans are designed to direct incremental preparedness actions in response to increasing fire danger. Those actions are delineated by "staffing levels." Each Step-Up Plan should address the five preparedness levels (1, 2, 3, 4, and 5) and the corresponding planned actions that are intended to mitigate those fire danger conditions. Several assessment tools are available to measure fire danger.

Outputs from the fire danger rating operating plan process, such as staffing levels, are used to support the decisions found in staffing plans, step-up staffing plans, preparedness levels, dispatch response plans, dispatch response levels, etc. Increasing fire danger results in increasing staffing levels, suggesting a corresponding increase in preparedness actions intended to mitigate those fire danger conditions.

The Staffing Plan describes escalating responses that are pre-approved in the fire management plan. Mitigating actions are designed to enhance the unit's fire management capability during short periods (one burning period, Fourth of July or other pre-identified events) where normal staffing cannot meet initial attack, prevention, or detection needs. The difference between preparedness level/step-up and severity is that preparedness level/step-up actions are established in the unit fire management plan, and implemented by the unit when those pre-identified conditions are experienced. Severity is a longer duration condition that cannot be adequately dealt with under normal staffing, such as a killing frost converting live fuel to dead fuel or drought conditions. Severity is discussed later in this chapter.

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Mitigating actions identified in the fire management plan should include, but are not limited to, the following items:
Management direction and considerations
Fire prevention actions, including closures/restrictions, media messages, signing, and patrolling
Prepositioning suppression resources
Cooperator discussion and/or involvement
Safety considerations: safety message, safety officer
Augmentation of suppression forces
Support function: consideration given to expanded dispatch activation, initial attack dispatch staffing, and other support needs (procurement, supply, ground support, and communication)
Support staff availability outside of fire organization
Communication of Fire Weather Watch and Red Flag Warning conditions
Fire danger/behavior assessment
Briefings for management and fire suppression personnel
Fire information - internal and external
Multi-agency coordination groups/area command activation
Prescribed fire direction and considerations
Increased detection activities

Seasonal Risk Analysis
A Seasonal Risk Analysis requires fire managers to review current and predicted weather and fuels information, compare this information with historic weather and fuels records, and predict the upcoming fire season's severity and duration for any given area. It is important to incorporate drought indices into this assessment.

Information from a Seasonal Risk Analysis can be used to modify the Annual Operating Plan (AOP), step-up and pre-attack plans. It provides the basis for actions such as prepositioning critical resources, requesting additional funding, or modifying Memoranda of Understanding (MOU) to meet anticipated needs.

Each unit selects, and compares to normal, the current value and seasonal trend of one or more of the following indicators which are most useful in predicting fire season severity and duration in its area:
NFDRS (or CFFDRS) index values (ERC, BI)
Temperature levels
Precipitation levels
Humidity levels
Palmer Drought or Standardized Precipitation Index
1000-hour fuel moisture (timber fuels)
Vegetation moisture levels
Live fuel moisture (brush fuels)
Curing rate (grass fuels)

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Episodic wind events (moisture drying days)
Unusual weather events (early severe frost)
Fires to date

The seasonal trend of each selected indicator is graphically compared to normal and all-time worst. This comparison is updated regularly and posted in dispatch and crew areas.

If the Seasonal Risk Analysis suggests an abnormal fire season might be anticipated, a unit should notify the state/regional office and request additional resources commensurate with the escalated risk.

Seasonal Risk Analyses are prepared, issued, and updated each year by GACC Predictive Service Units. Seasonal Assessment Workshops are conducted to facilitate these seasonal outlook reports. Local risk analyses should be compiled at the state/regional office to determine the predicted fire season severity within the state/region, and then forwarded to the respective national office for use in determining national fire preparedness needs. Risk analysis is ongoing. It should be reviewed periodically and revised when significant changes in key indicators occur. All reviews of seasonal risk analysis, even if no changes are made, should be documented.

Fire Severity Funding

~~Definition~~
Fire severity funding is the authorized use of suppression operations funds (normally used exclusively for suppression operations, and distinct from preparedness funds) for extraordinary preparedness activities that are required due to~~-~~:
an abnormal increase in fire potential or danger~~, or to~~ .
fire seasons that either start earlier or last longer than planned in the fire management plan.
The fire danger rating operating plan or annual operating plan should identify thresholds for identifying the need for severity resources.

~~Objective~~
The objective of fire severity funding is to mitigate losses by improving suppression response capability ~~when there is:~~.
~~Potential for abnormally severe fire behavior, or~~
~~Fire occurrence outside of the normal fire season.~~

When ~~either of these conditions exist, and when~~ suppression resources that were acquired through the approved fire planning process (e.g. NFMAS, IIAA, FPA)

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are insufficient to meet the extraordinary need, suppression resources may be requested through the severity funding process. Fire severity funding is not intended to raise preparedness funding levels to cover differences that may exist between funds actually appropriated ~~(including reseissions)~~ and those identified in the fire planning process.

Typical Uses
Severity funds are typically used to:
Increase prevention activities
Temporarily increase firefighting staffing
Pay for standby
Preposition initial attack suppression forces
Provide additional aerial reconnaissance
Provide for standby aircraft availability

Authorization
Authorization to use severity funding is provided in writing based on a written request with supporting documentation. Authorization is on a line item basis and comes with a severity cost code. Agencies will follow their administrative procedures for issuing severity cost codes. Authorization is provided for a maximum of ~~thirty~~14 days per request; however, regardless of the length of the authorization, use of severity funding must be terminated when abnormal conditions no longer exist. If the fire severity situation extends beyond the ~~thirty~~14 day authorization, the State/Region must prepare a new severity request.

State/Regional Level Severity Funding
Each fiscal year the national office will provide each state/region with $~~100~~300,000 and a severity cost code for state/regional short-term severity needs (e.g., wind events, cold dry front passage, lightning events, and unexpected events such as off road rallies that are expected to last less than one week). Expenditure of these funds is authorized by the state/regional directors at the written request of the agency administrator. State/regional directors are responsible and accountable for ensuring that these funds are used only to meet severity funding objectives and that amounts are not exceeded. The national office will notify the state/regional director, state/regional budget officer, and the state/regional FMO when the severity cost code is provided.
FWS - Short-term severity or "step-up" cost codes are established yearly (at the Regional level) as PE01, PE02, etc (numeric value indicates the specific region utilizing short-term severity funding).
NPS - Parks have the authority to approve "Step-up" actions only, as defined in their fire management plan. Regional offices approve severity (long term - up to 30 days) for parks up to $100,000 per severity event.
FS - Severity funding direction is found in FSM 5190.

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National Level Severity Funding
National Agency Fire Directors or their delegates are authorized to allocate fire severity funding under specific conditions stated or referenced in this chapter. Expenditure of these funds is authorized by the appropriate approving official at the written request of the state/regional director. Approved severity funding will be used only for the preparedness activities and timeframes specifically outlined in the authorization, and only for the objectives stated above.
NPS - National office approves all requests over $100,000.

Appropriate Severity Funding Charges

Labor
Appropriate labor charges include:
Regular pay for non-fire personnel
Regular pay for seasonal/temporary fire personnel outside their normal fire funded activation period
Overtime pay for all fire and non-fire personnel
Severity funded personnel and resources must be available for immediate initial attack regardless of the daily task assignment
Severity funded personnel and resources will not use a severity cost code while assigned to wildfires. The wildfire firecode number will be used.
Overtime pay for severity funded personnel will be paid by severity funds, unless the personnel are assigned to a wildfire.

Vehicles and Equipment
GSA lease rate and mileage
Hourly rate or mileage for Agency owned vehicles
Commercial rentals and contracts
FWS - Repair and maintenance of Fish and Wildlife vehicles and equipment; FWS does not have a Use Rate covering these charges.

Aviation
This includes:
Contract extensions
The daily minimum for call when needed (CWN) aircraft
Preposition flight time
Support expenses necessary for severity funded aircraft (facility rentals, utilities, telephones, etc.)

Travel and Per Diem
Severity funded personnel in travel status are fully subsisted by the government in accordance with their agency regulations. Costs covered include:
Lodging
Government provided meals (in lieu of per diem)

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Airfare (including returning to their home base)
Privately owned vehicle mileage (with prior approval)
Other miscellaneous travel and per diem expenses associated with the assignment

Prevention Activities
These include:
Funding Prevention Teams -(Preventions teams will be mobilized as referred in the National Mobilization Guide, Chapter 20)
Implementing local prevention campaigns, to include community risk assessment, mitigation planning, -outreach, and education
Augmenting patrols
Note: Non-fire funded prevention team members should charge base 8 and overtime to the severity cost code for the length of the prevention activities assignment. Fire funded personnel should charge overtime only to the severity cost code for the length of the prevention activities assignment.

Inappropriate Fire Severity Funding Charges
To cover differences that may exist between funds actually appropriated (including rescissions) and those identified in the fire planning process
Administrative surcharges, indirect costs, fringe benefits
Equipment purchases
Purchase, maintenance, repair, or upgrade of vehicles
Purchase of radios
Purchase of telephones
Purchase of pumps, saws, and similar suppression equipment
Aircraft availability during contract period
Cache supplies which are normally available in fire caches
Fixed ownership rate vehicle costs

Emergency Equipment Rental Agreements
Emergency Equipment Rental Agreements (EERAs) are used during emergency incidents under authorities that allow for direct, non-competitive ordering using established procedures in the event of immediate threat to life and property. EERAs will not be used for non-emergency activities, including severity activities, rehabilitation projects, and hazardous fuels projects.

Interagency Requests
Agencies working cooperatively in the same geographic area should work together to generate and submit joint requests, and to utilize severity funded resources in an interagency manner. However, each agency should request funds only for its own agency specific needs. The joint request should be routed simultaneously through each agency's approval system, and the respective approving official will issue an authorization that specifies allocations by agency.

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Requesting Fire Severity Funding
Fire severity funding requests should be submitted on the Interagency Severity Funding Request Form found at the website listed below. The completed and signed request is submitted from the state/regional director to the appropriate approving official as per the sequence of action outlined below. Authorizations will be returned in writing.

The ~~Standard~~interagency standard format for fire severity funding requests may be found at:

http://www.~~fire.~~blm.gov/~~Standards/BLM_Fire_Severity_Funding_Request.htm.~~ nifc/st/en/prog/fire/fireops/severity.html

Sequence of Action and Responsible Parties for Severity Funding Requests

Action	Responsible Party
Identify and develop severity funding request.	Unit FMO
Review, modify, and approve (or reject) request. Forward to state/regional office.	Unit agency administrator
Review, modify, and approve (or reject) unit request. Add state/regional needs and consolidate. Forward to state/regional director for approval within 48 hours.	State/Regional FMO
Review, modify, and approve (or reject) request. Forward to the appropriate National Fire Director/approving official within 48 hours. Notify the fire budget staff.	State/Regional Director
Review, modify, and approve (or reject) the request within 48 hours. Issue written authorization with a severity cost code.	Appropriate National Fire Director/Approving Official
Establish severity cost code in the appropriate finance system within 24 hours.	Applicable National Finance System
Notify unit office(s) and state/regional budget lead upon receipt of authorization.	State/Regional FMO
Execute severity cost code. Ensure that project expenditures are only used for authorized purposes.	Unit Office
Maintain severity files, including requests, authorizations, and summary of expenditures and activities.	Unit/State/Regional/ National Offices

Labor Cost Coding For Severity Funded Personnel
Fire personnel outside their normal activation period ~~and~~ , employees whose regular salary ~~are~~is not fire funded ~~by fire preparedness~~, and Administratively

Determined (AD) employees hired under an approved severity request should charge regular time and approved non-fire overtime to the severity suppression operations subactivity and the requesting office's severity cost code.

Fire funded personnel should charge their regular planned salary (base-eight) to ~~preparedness~~ their budgeted subactivity using their home unit's location code. Overtime associated with the severity request should be charged to the severity suppression operations subactivity and the requesting office's severity cost code.

Regular hours worked in suppression operations will require the use of the appropriate fire subactivity with the appropriate firecode number. Overtime in fire suppression operations will be charged to the suppression operations subactivity with the appropriate firecode number.

Employees from non-federal agencies should charge their time in accordance with the approved severity request and the appropriate local and statewide agreements. A task order for reimbursement will have to be established and is authorized under the Interagency Agreement for Fire Management.
FS - Labor Cost Coding. Forest Service severity funding direction in FSM 5190 provides agency specific direction.

Documentation
The state/regional and national office will document and file accurate records of severity funding activity. This will include complete severity funding requests, written authorizations, and expenditure records.

Severity Funding Audits
State/regional and national offices should ensure appropriate usage of severity funding and expenditures. This may be done as part of their normal agency fire program review cycle. The severity funding audit checklist may be used as a guide for this process. Interagency Preparedness Review checklists can be found at: http://www.nifc.gov/references/prep_review.html

BLM - Severity funding is not a reviewed item of the BLM national Preparedness Review. ~~BLM Preparedness Review Checklists can be found at: http://www.fire.blm.gov/Standards/FIRE_AVIATION_PREPAREDNESS_REVIEW_GUIDE.htm~~
BLM Preparedness Review Checklists can be found at: http://www.blm.gov/nifc/st/en/prog/fire/fireops/preparedness/preparedness_review/checklists.html

Fire Prevention/Mitigation

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Wildland Fire Cause Determination & Fire Trespass
Agency policy requires any wildfire to be investigated to determine cause, origin, and responsibility.

For all human-caused fires where the guilty party has been determined, actions must be taken to recover the cost of suppression activities, land rehabilitation, and damages to the resources and improvements.

Wildland Fire Mitigation and Prevention
Fire programs are required to fund and implement unit level Fire Prevention Plans by completing a wildland mitigation/prevention assessment. The purpose of this is to reduce undesirable human caused ignitions, to reduce damages and losses caused by unwanted wildland fires, and to reduce the suppression costs of wildland fires. Wildland fire mitigation/prevention programs based on the Risk Assessment and Mitigation Strategies (RAMS) process can reduce damages and losses during periods of average weather, fuels, and human activity. As weather and fuel conditions move from average to above average or severe, and/or human activity increases, mitigation and prevention activities must be strengthened to maintain effectiveness.

Prevention includes education (sign posting plans, school programs, radio and news releases, recreation contacts, local business contacts, exhibits), industrial program monitoring (timber, mining, power line maintenance operations), reconnaissance patrols, and other activities to prevent and mitigate wildfire damage, and loss.
NPS - Only units that experience more than an average 26 human caused fires per ten-year period are required to develop a fire prevention plan, based upon a prevention analysis such as RAMS; however, use of this software is not required.
FS - Forest Service direction for wildland prevention and investigation is found in FSM 5110 and 5300.